

a semiconductor substrate having a major surface;

an insulating film, having an upper surface, being formed on said major surface of said

5 semiconductor substrate to extend from said memory cell region to said peripheral circuit region;

a capacitor lower electrode assembly, including first and second lower electrodes being adjacent to each other through a part of said insulating film, being formed on said major surface of said semiconductor substrate to extend up to a vertical position substantially identical to that of said upper surface of said insulating film in said memory cell region; [and]

10 first and second openings formed in the insulating film, and the first and the second lower electrodes formed within the first and second openings, respectively;

said first and second lower electrodes each of a cylindrical shape having an interior region;

15 wherein respective sidewalls of the first and the second lower electrodes are formed to extend in a longitudinal direction with respect to the major surface of the semiconductor substrate, each sidewall having a cross-section in the longitudinal direction which is substantially linear; and

a capacitor upper electrode being formed on said capacitor lower electrode assembly through a dielectric film to extend onto said upper surface of said insulating film, said upper
20 electrode being formed on [an] the interior region of each of the first and second electrodes,

said capacitor lower electrode assembly including a capacitor lower electrode part upwardly extending in opposition to said capacitor upper electrode and having a top surface and a bottom surface.